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ON THE APPLICATION OF PHOTOGRAPHY TO MICROMETRY, WITH SPECIAL REFERENCE TO THE MICROMETRY OF BLOOD IN CRIMINAL CASES.

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RECENT experiments in photographing the blood-corpuscles of man and other animals lead me to propose photography as affording the means of making comparative measurements more accurately, and with less expenditure of time, than can be done by any other method.

The plan I propose is simply as follows. The blood is placed on a glass stage-micrometer and photographed with any convenient power, both blood and micrometer appearing sharply defined in the picture. The measurements are then made on the negative.

The stage-micrometer must be ruled on the upper surface of a piece of glass, and must have no thin cover. For mere comparative measurements any ordinary stage-micrometer in which the lines are equidistant can be made to answer by simply removing its cover; but if absolute values are aimed at, the micrometer must be compared with a recognized standard, and its constant error ascertained. The stage-micrometer used in the present series of experiments is the same described in a former paper.* It is ruled in hundredths, thousandths, and five-thousandths of an inch; and, so far as I have been able to ascertain by repeated comparisons of its parts with each other, the several divisions of each kind are equal throughout, five of the five-thousandths being equal to any one of the thousandths, and ten of the latter to any one of the hundredths.

On comparison with a standard scale belonging to the United States Coast Survey, by the contact method of Welcker, this micrometer proved, as I stated in the paper just cited, to have a constant error of +1.945 per cent.; that is, its lines are very nearly two per cent. too far apart; and this correction must of course be applied in the measurement of the photographs, as it was in the measurement of the corpuscles as seen in the microscope, which were published in the paper referred to.

The micrometer having been selected, it may be used for the measurement of blood dried in a thin film, of fresh blood in the moist state, or of dried stains soaked out by any selected method. In the first case the fresh blood should be spread on the micrometer by means of the edge of a glass slide, as proposed by Dr. Christopher Johnston, of Baltimore. A camel's-hair pencil is sometimes used for the same purpose; but it is a clumsy device, which no one who has been initiated into the proper method will ever employ. The blood thus spread may be photographed as seen uncovered, with a dry objective; but the best results are obtained with immersion objectives, to use which the specimen must of course be covered with a suitable piece of thin glass (.005″ to .008″ thick).

After two or three negatives have been made from the sample first selected, it is washed off, and a fresh specimen substituted, and so on. If it is desired to photograph fresh blood, a drop is put on the micrometer, a thin cover (of the thickness named) dropped on and allowed to press out the blood to the thinnest possible film. Excellent results may thus be obtained with the micrometer, almost as sharply defined as in the case of dried blood. If dried stains are to be examined, as in criminal cases, the fragments of dried blood are to be soaked out, by any of the approved methods, on the same micrometer, just as if on an ordinary glass slide; and when a satisfactory preparation has been made, it may be photographed, together with the micrometer, as in the former cases. For the purpose of soaking out such stains, I myself very much prefer to use a strong solution of caustic potash, as described by Virchow in 1857.* This reagent dissolves the fibrin and sets the red blood-corpuscles free without materially modifying them.

In order to obtain photographs of the specimens thus prepared, which shall at

* J. J. Woodward, On the similarity between the red blood-corpuscles of man and those of certain other mammals, especially the dog, etc. American Journal of the Medical Sciences, January, 1875, p. 151, and the Monthly Microscopical Journal, February, 1875, p. 65.

* R. Virchow, Ueber die forensische Untersuchung von trockenen Blut-flecken. Virchow's Archiv, Bd. xii. S. 334.

once be well defined and magnified sufficiently to render differential measurements easy, it is advisable to use immersion objectives of high power. I have employed the Powell and Lealand's one-sixteenth, and the one-eighteenth of Tolles, belonging to the Army Medical Museum, for this purpose, and, rejecting all eye-pieces and amplifiers, have aimed to obtain a magnification not less than one thousand diameters by distance alone. Of the two objectives named, the one by Tolles gives somewhat the sharper images, and has the flatter field. I have therefore used it for most of the work. It is only just to repeat here that, although correctly named a one-eighteenth, this objective is of lower power than the wet front of the Powell and Lealand one-sixteenth, belonging to the Museum, which is really a one-nineteenth, although the dry front of the same combination is a one-sixteenth. The chief difficulty in making photographs of blood-corpuscles with this high power is to avoid diffraction fringes in the images; but this can readily be done by following the method which I have explained in detail in my paper on "Photographing Histological Preparations by Sunlight."* This method is extremely simple, and offers no difficulties to any one who has acquired a reasonable degree of skill in microscopical manipulation. It is my desire to put it at the service of all sincere workers in this direction, and I cannot, therefore, view with indifference the publication of imperfect substitutes, which can only serve to waste the time of any one who may be misled into employing them. For this reason I feel it a duty to warn the reader against attempting to follow the methods described in two recent papers on this subject, published in the *Philadelphia Medical Times*.† It would be waste of time to criticise these papers in detail. The methods described in them appear to have been devised without any intelligent consideration of the optical principles involved. I was not therefore surprised, on seeing some of their author's photographs of blood-corpuscles with high powers, referred to in his second paper, to find them lacking in definition, full of diffraction fringes, and, by reason of these faults, unfit for measurement or any other serious use.‡ Nor was I surprised to read, near the end of the second paper, that "no one who has not tried it can form an idea of the difficulties attending the application of high powers to microphotography, and a single tolerably good negative is often the only result of a hard day's labor."

By my own easy method, on the other hand, an average morning's work produces from fifteen to eighteen successful negatives. The time of exposure with the objectives named above, arranged to magnify the blood-corpuscles about 1000 diameters, is usually less than a second. A heliostat is therefore not *necessary* to obtain satisfactory results, as I have several times shown by taking such pictures quite as well without it as with it. The heliostat, however, is a great time-saver, since without it the light must be re-adjusted for every picture. I recommend any one about to experiment in this direction to procure one. An instrument which will answer every purpose can be extemporized for a few dollars out of a bit of looking-glass and the works of a Yankee clock; but even the cost of the admirable heliostat of Silbermann, as made by Dubosq, is only five hundred francs, which will be more than repaid by the time saved during the first year, unless the time of the experimenter is not worth as much as that of an ordinary day-laborer.

I also find it economical to employ a professional photographer in my dark-room, and I recommend others to do the same. By this plan the microscopist is left free to devote his sole attention to procuring the best possible optical images, while the photographer has nothing to consider but the best possible chemical work. A much greater quantity of good work can be produced in this way, in a given time, than is possible if the microscopist undertakes to do the photography himself. In this case he almost certainly sacrifices the optical part of the work to the photographic, or vice versa, and a reasonable degree of success is attained only by a wasteful expenditure of time.

Satisfactory photographs having been ob-

* Surgeon-General's Office, July 13, 1871. Reprinted in the American Journal of Science and Arts, October, 1871, p. 258, the Monthly Microscopical Journal, October, 1871, p. 169, and the British Journal of Photography, October 27, 1871, p. 507.

† Carl Seiler, Photographic Enlargements of Microscopical Objects. Philadelphia Medical Times, June 5, 1875, p. 563. By the same: High Powers in Microphotography, op. cit., February 10, 1875, p. 249.

‡ Since writing the above, I have seen a photograph of blood by Dr. Seiler which is free from diffraction. It is, of course, taken with a much *lower* power than the others. Even this picture is *not sharp*, as it would have been had a proper method been used.

tained, the corpuscles are next to be measured on the glass negatives. Paper prints are never exactly the size of the negatives. They spread a little if rolled; if not rolled, they may prove either a little larger or a little smaller than the negatives. Moreover, this spreading or contraction does not take place equally in all directions, and is sometimes quite irregular. It is most accurate, therefore, to measure on the negatives. For this purpose I lay the negative, with its varnished film uppermost, on the ground glass of an ordinary photographic re-touching frame, illuminated from behind by a mirror, and measure the corpuscles under a magnifying glass by means of a transparent scale ruled in hundredths of an inch on a thin strip of horn. The accuracy of this scale is of course determined by comparison with a standard. To avoid parallax, I turn the ruled side of the scale down so as to bring it in contact with the varnished film. It will very generally be found that the dried corpuscles are not perfectly round; the longest and shortest diameters must then be measured, and the mean taken. As the image of each corpuscle is measured, a dot of water-color is put on it, that it may not be measured a second time. This is readily washed off when the work is done. Extremely deformed corpuscles, and those which are obviously turned on edge, are not measured; but no others are omitted. As each corpuscle is measured it is entered on a check-list, which shows, when all on the negative have been measured, the number of corpuscles of each size. The sum of all the values, divided by the number of corpuscles measured, gives the average size of the images of the corpuscles in one one-hundredths of an inch. This average size, divided by the true magnifying power, gives the true average size of the corpuscles. To find the true magnifying power, I measure the distance of the lines of the micrometer from centre to centre on the negative, and divide by their true distance apart on the micrometer (that is, their nominal distance apart corrected by the ascertained constant error of the micrometer). The number of corpuscles on each negative, in my experiments, has ranged, with a single exception, from 50 to 175. Had the power always been just 1000 diameters, the measurements in one one-hundredths of an inch would have corresponded to one one-thousandths of an inch, and could be relied upon as correct to that figure. That is, writing the results in decimals of an inch, any error of observation would have been less than one significant figure in the fifth decimal place. With slightly higher magnifications, the results are still more accurate. When it comes to computing the mean of from 50 to 175 such measurements, it can hardly be questioned that it is proper to carry out the mean results one decimal further, and it is not extravagant, therefore, to claim that the computed results are correct to the sixth significant figure. In the appended table, therefore, I give the average size of the corpuscles represented on each negative in millionths of an inch (together with the equivalent value in millionths of a millimetre, obtained by computation).

I feel justified in claiming for the method above detailed, that it requires less time for an equal number of measurements, and that it is more accurate than any of the methods heretofore employed for the micrometry of blood-corpuscles. I also claim for it that it is capable of useful application in the micrometry of many other objects for which great accuracy is desirable.

As to the time required, I suppose that twenty-five to fifty negatives, containing from 50 to 175 corpuscles each, can be made and the corpuscles measured in less than a quarter of the time necessary to measure the same number of corpuscles in the microscope by means of a glass eye-piece micrometer, and in less than a tenth of the time necessary if a cobweb micrometer be used.

As to accuracy, I have already mentioned the advantages of the plan proposed. I have next to refer to certain sources of inaccuracy in the method ordinarily employed. This method consists in the use of an eye-piece micrometer to which values are first given by focusing on a stage-micrometer and comparing the two sets of lines; the stage-micrometer is then removed and replaced by the slide to be measured. But the values thus obtained are only true so long as all the optical conditions under which they were procured are rigorously maintained; and unintentional errors may be introduced in various ways. Especially must it be noted that the least alteration of the cover-correction of the objective, whether by accident or for the purpose of improving definition, will be found to modify the magnifying power of the ob-

jective, and, of course, to alter the value of the eye-piece micrometer. If, bearing this fact in mind, the observer first finds the best position of the screw-collar for the slide of blood to be measured, and then inserts the stage-micrometer, to give values to the eye-piece micrometer, he will very often discover, when he replaces the blood-slide and begins to measure it, that the cover is of different thicknesses in different parts, and that he must either change the correction or be content to measure the corpuscles as seen somewhat out of focus.

Besides this source of error, to which too little attention has been paid, there is another, which appears to have been altogether neglected. Most of the published measurements of blood-corpuscles have been made on blood dried in thin films on glass. But, however daintily this operation is performed, a large proportion of the corpuscles become more or less elliptical in drying. Yet, in the micrometry of the blood-corpuscles, as practised hitherto, they are measured in only one direction. Under these circumstances inaccurate results are of course inevitable.

With the comparatively low powers used by most of those who have published measurements of the blood-corpuscles, this source of error was naturally overlooked; but with a thousand diameters and upwards it becomes evident enough. In making the measurements reported in my former paper, I endeavored to escape this error by measuring only those corpuscles which appeared to be perfectly round. "Large and small forms were not searched for, but all the perfectly-formed corpuscles brought into view by the movement of the stage were measured as they passed under the micrometer, without selection, until the required number was recorded." I am now satisfied that the larger corpuscles are more frequently deformed than the smaller ones, and that, by pursuing the plan I did, I measured an undue proportion of the smaller corpuscles, and thus obtained averages somewhat less than the truth. In this way only can I account for the circumstance that the measurements now published are somewhat larger than those in my former paper, although the same micrometer was used, and with the utmost care.

Of course, since this source of error has been pointed out, it would be possible to measure the longest and shortest diameter of the elongated corpuscles in the microscope as well as on the photographs; but it would require a much greater expenditure of time.

It is my purpose, when time permits, to prepare a series of photographs of moist blood, and of blood soaked out from dried stains, as in criminal cases. A few such photographs accompany the present paper, to show the perfect feasibility of these applications of my method. Especially is the application to criminal cases worthy of practice. Perhaps I ought not to go so far as to say that no expert who goes into court to testify about blood-stains deserves to be listened to by a jury unless he takes with him photographs of the blood examined on a stage-micrometer; but certainly it must be admitted that hereafter the most trustworthy expert-testimony in such cases will be that which is corroborated by photographic evidence. The general introduction of this severe method of recording accurately the facts observed, is the more desirable because of late a spirit of exaggeration seems to have possessed certain experts, who either boldly claim, or in ambiguous language obscurely insinuate, that they possess the power of discriminating human blood from that of other animals in the dried stains which are submitted to examination in criminal cases.

The latest offender in this direction is Malinin,* who published last year a paper in which, by the measurement of corpuscles soaked out from dried stains, he claims to distinguish not only between human blood and the blood of many other mammals, but, under certain conditions, between human blood and the blood of any other mammal, even the dog. To make out his case, Malinin assumes the invariable accuracy of Carl Schmidt's† mean values of the diameter of the blood-corpuscles of man and certain mammals, which he republishes without credit, as if they were his own. It is precisely this assumption of invariability which leads him astray. The truth is that not only do the individual corpuscles in every drop of

* Malinin, Ueber die Erkennung des menschlichen und thierischen Blutes in trockenen Flecken in gerichtlich-medicinischer Beziehung. Virchow's Archiv, Bd. lxv. (1875) S. 528.

† Carl Schmidt, Die Diagnostik verdächtiger Flecke in Criminalfällen. Mittau und Leipzig, 1848. When I published my former paper, as I then stated in a foot-note, I had not been able to see a copy of this paper; but one has since been received at the Library of the Surgeon-General's Office.

blood vary considerably in size, but, as might be anticipated from this very fact, the average size obtained by measuring a limited number of corpuscles (50 to 175, still more in the case of but 10 to 50, as usually practised) varies considerably, not only between different individuals, but also between different parts of the very same drop of blood.

Now, it is true, as was shown by the measurements of human and dog's blood, published in my former paper, that the mean diameter of the corpuscles in a given sample of human blood is often rather larger than the mean of a sample of dog's blood selected for comparison. I may even go further, and say that the average of all the measurements of human blood I have made is rather larger than the average of all the measurements of dog's blood. But it is also true that it is not rare to find specimens of dog's blood in which the corpuscles range so large that their average size is larger than that of many samples of human blood. This was clearly shown by the measurements published in my former paper, as it is by those which are appended to the present paper, and will be by any fair series of comparative measurements.

Thus I note here with pleasure that, since the publication of my former paper, Professor Gulliver, whose measurements of blood-corpuscles are those most frequently cited in English works, has published an extended and revised table of measurements of the blood-corpuscles of vertebrates, prefaced by some remarks, in the course of which he expressly affirms the futility of attempting to distinguish human blood in criminal cases.*

I conclude this paper with a table of measurements of the red corpuscles of man, the dog, and the guinea-pig, as dried in thin films on the glass micrometer, and measured by the photographic method above described. A print of each negative accompanies this paper, and copies of a selection of them will shortly be sent to convenient places in the larger cities, with the view of making them accessible to those who may be interested in this question.

The table gives the number of corpuscles measured on each negative, the diameter of the maximum and minimum, and the mean. The maxima and minima are given, like the mean, in millionths of an inch, because, although the measurements were actually made in hundredths of an inch, which with about one thousand diameters would correspond to about hundred-thousandths, yet the measures when corrected by the true magnifying power seldom remained a whole number, and the fraction is expressed by an additional decimal.

The measurements of human blood are from twenty-two negatives, taken from nine drops of blood obtained from eight individuals, the whole number of corpuscles measured being 1766. The maximum size measured was 396 millionths of an inch in diameter. But two corpuscles of this great size were measured. The smallest corpuscle measured was 216 millionths of an inch in diameter, and but a single corpuscle of this minute size was measured.

The number of corpuscles on each negative ranges from 50 to 140, except on a single negative, which presents only 26 corpuscles. This happens to be a group of large corpuscles the mean diameter of which is 343 millionths of an inch, being the largest average diameter obtained on any negative. The smallest average was 309 millionths of an inch, being the mean of 90 corpuscles.

The measurements of dog's blood are from thirteen negatives, taken from five drops of blood, each from a single individual. The largest corpuscle measured was 378 millionths of an inch in diameter; the smallest, 237 millionths of an inch. The negatives contain from 80 to 175 corpuscles each, the total number of corpuscles measured being 1571. The largest average size for any negative was 340 millionths of an inch, being the mean of 100 corpuscles. The smallest was 296 millionths of an inch, being the mean of 111 corpuscles. It will be observed that on seven of the negatives of dog's blood the corpuscles have an average diameter smaller than the corpuscles

*George Gulliver, Observations on the Sizes and Shapes of the Red Corpuscles of the Blood of Vertebrates, etc. Proc. of the Zoological Society of London, June 15, 1875, p. 474. The passage referred to in the text is on page 484: "As before noticed, the magnitude of the corpuscles in a single species, not excepting the human, is liable to variations within certain limits; and there commonly appear in one field of vision of the same corpuscles differences amounting to at least one-third larger and smaller than the average. Hence, as regards the medico-legal question, however truly a careful observer (Dr. Joseph G. Richardson, Monthly Micros. Journ., Sept. 1874) may have distinguished, by comparative measurements of the corpuscles, stains of human blood from those of the sheep or ox, this kind of diagnosis, as Dr. J. J. Woodward observes (Monthly Micros. Journ., Feb. 1875), would be ineffectual in some probable and more possible cases. It should be borne in mind, too, that in the apyrenæmata" (*i.e.*, the mammalia) "the membranous bases of the blood-disks, when deprived of their color by maceration in water, are about a third smaller than the unaltered corpuscles."

on any of the negatives of human blood, while on the other six the average size of the corpuscles proves to be larger than the smallest average for human blood, and the largest average on any one negative of dog's blood exceeds that for any negative of human blood except the very largest. I call attention also to the very diverse averages obtained with both the human and dog's blood from different parts of the very same drop.

The measurements of guinea-pig's blood are from four negatives only, made from different parts of a single drop of blood. The total number of corpuscles measured was 401. One of the negatives gives an average one-millionth of an inch smaller than the smallest average for human blood; all the others give averages larger than the smallest for human blood. The variations in size are not so great as in the negatives either of dog's blood or of human, but, as they are taken from a single drop, it can hardly be assumed that this is a characteristic feature of the blood of the guinea-pig. I think no one could have told from the examination of this drop of blood whether it belonged to the guinea-pig, the dog, or man.

TABLE I.

Measurements of Human Red Corpuscles from Eight Individuals.

	No. of Corpuscles measured.	Diameters of Human Blood. Dec. of an Eng. Inch. Maximum.	Minimum.	Mean.	Dec. of a Millimetre. Mean.
1. Drop H, Neg. 849..	90	.000363	.000255	.000309	.007848
2. Drop G, " 846..	55	.000353	.000245	.000311	.007899
3. Drop E, " 835..	70	.000339	.000261	.000312	.007925
4. Drop D, " 828..	140	.000346	.000255	.000314	.007975
5. Drop H, " 848..	50	.000343	.000274	.000315	.008001
6. Drop C, " 824..	50	.000337	.000273	.000316	.008026
7. Drop G, " 840..	81	.000372	.000265	.000316	.008026
8. Drop G, " 841..	104	.000363	.000255	.000317	.008052
9. Drop H, " 847..	80	.000363	.000255	.000319	.008102
10. Drop D, " 827..	90	.000364	.000218	.000320	.008128
11. Drop A, " 820..	75	.000359	.000230	.000326	.008280
12. Drop B, " 822..	105	.000368	.000258	.000326	.008280
13. Drop I, " 854..	80	.000353	.000294	.000326	.008280
14. Drop C, " 823..	75	.000360	.000261	.000326	.008280
15. Drop C, " 825..	75	.000382	.000282	.000327	.008306
16. Drop B, " 821..	105	.000368	.000285	.000327	.008306
17. Drop A, " 818..	80	.000359	.000278	.000328	.008331
18. Drop I, " 855..	70	.000382	.000284	.000331	.008407
19. Drop D, " 826..	95	.000371	.000285	.000334	.008483
20. Drop F, " 837..	60	.000396	.000216	.000335	.008509
21. Drop A, " 819..	110	.000396	.000276	.000337	.008560
22. Drop E, " 836..	26	.000378	.000288	.000343	.008712

TABLE II.

Measurements of Red Corpuscles of the Dog, from Five Individuals.

	No. of Corpuscles measured.	Diameters of Dog's Blood. Dec. of an Eng. Inch. Maximum.	Minimum.	Mean.	Dec. of a millimetre. Mean.
1. Drop A, Neg. 815..	111	.000352	.000257	.000296	.007518
2. Drop B, " 830..	107	.000346	.000237	.000296	.007518
3. Drop E, " 859..	120	.000363	.000245	.000298	.007569
4. Drop B, " 829..	175	.000346	.000255	.000298	.007569
5. Drop E, " 860..	120	.000353	.000255	.000301	.007645
6. Drop A, " 816..	120	.000342	.000247	.000305	.007747
7. Drop C, " 831..	152	.000355	.000246	.000308	.007823
8. Drop C, " 833..	140	.000359	.000258	.000310	.007874
9. Drop D, " 857..	100	.000353	.000265	.000310	.007874
10. Drop D, " 858..	111	.000353	.000255	.000310	.007874
11. Drop A, " 817..	80	.000361	.000238	.000315	.008001
12. Drop C, " 832..	135	.000350	.000276	.000317	.008052
13. Drop C, " 834..	100	.000378	.000270	.000340	.008636

TABLE III.

Measurements of Red Corpuscles of the Guinea-pig from One Individual.

	No. of Corpuscles measured.	Diam. of Guinea-pig's Blood. Dec. of Eng. Inch. Maximum.	Minimum.	Mean.	Dec. of a Millimetre. Mean.
1. Drop A, Neg. 852..	111	.000363	.000265	.000308	.007823
2. Drop A, " 850..	100	.000372	.000265	.000310	.007874
3. Drop A, " 851..	90	.000353	.000253	.000313	.007950
4. Drop A, " 853..	100	.000382	.000265	.000314	.007975

I propose to make a number of other negatives of the blood of the dog and the guinea-pig at an early day, with a view to additional measurements; but those now published are, I must think, quite sufficient to demonstrate the reckless temerity of those who would attempt to discriminate human blood, even on nicely-dried slides prepared with every possible care to preserve the shape of the corpuscles.

A GOOD STORY is told of Chivac, the physician of the Duke of Orleans. He never noticed that he was ill, being so anxious about the health of others; but one day he felt his own pulse, and said, "He's a dead man. I have been called in too late."

CHILD FATALLY POISONED BY ALCOHOL.

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EDDIE, aged four years and five months, child of T. M. B., was poisoned by alcohol under the following circumstances:

The father of the child—convalescing from a severe attack of pleuro-pneumonia—was allowed Catawba wine freely, instead of a more decided stimulant. Saturday, May 27, finding his supply exhausted, he sent to a neighboring grocer's for a quart of wine, sending a bottle to receive it. Sunday morning following, after rising, about 7 A.M., he poured out a large-sized gobletful, but, tasting it, he discovered it was whisky instead of wine. He attempted to pour it back into the bottle, but, failing to do so, his wife said she would go down-stairs and get a pitcher for the purpose. He set the goblet on the table, nearly full of whisky, and both went down-stairs.

They left two little boys asleep in bed, one six years and the other four years and five months old. After a short time the two little fellows came down, the smaller of the two falling at the foot of the stairs. His mother ran to him, and, supposing he had fainted, made hastily a little mint-julep, but succeeded in giving him only a teaspoonful or two. He quickly fell into a deep stupor, his face and neck became very red, and he was bathed in a profuse perspiration. It was suggested at first that he had been accidentally poisoned, but his little brother relieved their minds by saying he drank the wine; and on examination the goblet was found empty. Syrup of ipecac was administered at once, and repeated several times, with other means to induce vomiting, but without the slightest effect. I saw the child first at 10.30 A.M., about four hours after the occurrence.

I found him in a profound coma, lips livid, face congested, eyes suffused, pupils contracted, pulse feeble and slow, respiration feeble, slow, and jerking, breath strongly alcoholic, surface cool and moist, body and extremities extremely relaxed, so that care had to be taken to lift the head with the body. His teeth were tightly closed, and there was occasional stertor. He seemed to be entirely unconscious and insensible to every impression, and indeed almost lifeless. He was still in his night-dress, and I had him conveyed to a large, cool, open parlor, and laid on a sofa near the windows. In the absence of a stomach-pump, deglutition apparently not being entirely lost, but being nearly extinct, by setting him upright I succeeded in pouring down him, while raising the larynx, a small cupful of tepid salt water by teaspoonfuls, and then, by tickling the fauces violently, he ejected part of that administered. I did this two or three times, until finally it had no effect whatever. At the same time that I gave the water I got down three or four teaspoonfuls of syrup of ipecac. During this period he uttered, several times, a kind of moan. The vomited fluid had no odor of alcohol. I kept his head bathed in cold water, stimulated the region of the heart and the extremities, and gave an occasional dose of acetate of ammonium in solution, trusting to its finding its way into the stomach.

His condition grew rapidly worse, and by the time the stomach-pump arrived it was impossible to use it, and it would have been without avail, as it was evident the entire quantity of alcohol had been absorbed, there being nothing to hinder it from the beginning, the stomach being entirely empty. The pupils became now largely dilated, and remained so, the breathing very slow and sighing, almost ceasing at times, with very strong alcoholic odor; the pulse quickened, and was more irregular, convulsive twitching of the thumbs towards the palms, then movements of the arms towards the body, and drawing the left hand across the region of the stomach, the arm bent at right angles; followed at 4 P.M. by general convulsive movements, principally opisthotonous, bending the body backwards, and strongly extending the limbs and feet. I placed his extremities in a warm mustard bath, administered a dose of potassium bromide, which may or may not have reached its destination, placed him in the sinistro-lateral position, and in fifteen or twenty minutes the convulsions ceased. He lived in this condition until about seven o'clock P.M., when he expired, about twelve hours after taking the liquor. The quantity of whisky taken was about seven ounces, and was of inferior quality. The parents said that in less than fifteen minutes after it was taken he was entirely insensible, and could not be roused, showing the rapidity of absorption, and its almost immediate general effect. Of course, the condition of the stomach favored this, it being before any food had been taken, and when the system was fresh from repose, and all its functions sharpened for vigorous action. He seemed to die from congestion of both the brain and the lungs.

TRANSLATIONS.

THE TREATMENT OF HYGROMA PRÆPATELLARE BY INCISION (R. Volkmann: *Berlin. Klin. Wochenschrift*, 1876, No. 8).—The treatment of this affection by incision, which was previously attended by considerable risk, Volkmann now carries out by the antiseptic method in the same way as that of hydrocele. He opens the sac, cuts out a portion of the anterior wall, removes all partitions or cords, rice-bodies, and coagulated layers, with scissors or

scraper, and then applies a compressing bandage. The walls of the pouch, as a rule, adhere, and healing speedily takes place. When acute suppurative or even phlegmonous bursitis occurs, the same result is usually attained. Chronic hygromata commonly take on a fibrous character, the rice-like bodies being found as connections of fibrin, the pediculated bodies as deposits of fibrin upon the sac-walls.

W. A.

Injury of One Side of the Spinal Cord (G. V. Dall: *Armi. Bayr. ärzl. Intelligenzbl.*, 1875, No. 48).—A boy, aged 13 years, received a wound between the vertebral column and left shoulder-blade, and fell immediately to the floor, without loss of consciousness. The total paralysis of the extremities, which at first existed, at the expiration of two years had become so much less marked that the arms were entirely free. There were, however, incomplete paralysis of the left leg, and hyperæsthesia of the skin. Sensibility was retained, while the strength was diminished and reflex excitability increased. There was atrophy of the left inferior extremity, and, what distinguishes this case from others, atrophy of the left side of the abdomen, breast, and back. On the right side there was no disturbance of motion, but anæsthesia of the leg as far as the lower part of the thigh. W. A.

Changes in the Pulse in Lead-Colic (A. Frank: *Deutsch. Archiv f. Klin. Med.*, xvi., s. 423).—In 82 cases of lead-colic, Frank found the following: 1. The impulse of the heart in 30 cases was unnaturally weak, in 9 stronger than usual, and in 43 nearly normal. 2. The second aortic sound in 22 cases was distinctly strengthened, in 7 decidedly metallic. 3. Systolic murmurs were found but twice, and vanished during reconvalescence. 4. The radial pulse was changed, and took a characteristic form. The upward course was steep and uninterrupted, while the descending line showed a slow descent, which was especially marked by its prolonged end. The pulse became gradually normal some time after recovery. These changes in the pulse are explained by an increase of the tone of the vessels, which is due to the influence of the saturnine poisoning. This is supposed to be due, not to a direct action upon the muscles of the vessels, but to an influence exerted upon the vaso-motor nerves; but it is uncertain whether the action of the metal takes place in the vaso-motor centre or on the peripheral fibres. The cause of the colic is sought for in a similar action upon the arteries of the abdomen. The pains can be lessened for some time by causing dilatation of the vessels by the inhalation of the nitrite of amyl. W. A.

The Structure of Tendons (Herzog: *His u. Braune's Zeitschr. f. Anat.*, i., s. 290).—On transverse sections of the tendo Achillis of the calf are found fields which, in addition to the well-known star-shaped markings which can be compacted, are separated by bright anastomosing lines. By these, each bundle of fibrillæ is separated into a large number of larger and smaller fields. The primary bundles are everywhere surrounded by a distinctly-marked sheath, which completely encloses them, and limits them from those adjacent.

W. A.

Action of Tartar Emetic.—Dr. Angelo Mosso, Professor in the Physiological Institute at Florence, has published a monograph of twenty-four pages upon the action of tartar emetic (Sulla Azione del Tartaro-Emetico). He studied its effects upon dogs by means of the usual apparatus. The medicine was given by the stomach, and by injection under the skin or into the jugular vein. He found the emetic to act more promptly, and in much smaller doses, when given by the stomach than when injected into the jugular. By the former, three or four centigrammes usually produced emesis, while by the latter method it was necessary to introduce from three to twenty-five centigrammes. He says large doses given by the viscus often fail to produce vomiting, while by the vein they never do.

He sought to determine if a hydrochlorate of antimony was formed which irritated the stomach, as stated by Mialhe.

This gentleman thinks tartar emetic causes emesis in the early stages of pneumonia by combining with an excess of chlorine, found in the early stages of acute febrile diseases, and fails later, because after vomiting and diet the chlorine is much diminished.

Mosso says tartar emetic acts as promptly and efficiently upon an empty stomach as upon a full one, and added artificial gastric juice does not increase its activity. Immediately after vomiting, the reaction of the stomach was found to be neutral.

The action of the agent does not depend upon any particular reaction of the gastric secretion.

He states that tartar emetic acts in two ways: it irritates the terminal filaments of the vagi, or affects the nervous centres after absorption. In small doses it increases the pulse, which becomes very rapid after larger ones; it decreases the blood-pressure, and diminishes and finally destroys the muscular and nervous irritability.

After death from the emetic, the stomach and duodenum were found congested, and there was a great increase in the mucous and serous secretions.

In seventeen dogs killed by injecting the emetic into the vein, the color of the mucous membrane of the stomach varied from violet to red.

In twelve others, killed in the same manner, but in which the vagi had been previously cut, the color in four was pallid and in eight it was red. After injecting atropia to paralyze the peripheral ends of the vagi, he found that injections of the emetic did not induce hyperæmia of the stomach. He opened the abdomen in several dogs, and made a circular cut around the œsophagus at its junction with the stomach just deep enough to divide all the fibres of the vagi, and then killed them by injecting the tartrate into the jugular. In these cases the stomach was generally pallid.

He concludes that tartar emetic usually affects the vaso-motor filaments of the pneumogastrics, and causes vomiting by local irritation. W. H. W.

Salicin as a Substitute for Salicylic Acid (H. Senator: *Centralblatt für die Med. Wissenschaften*, No. 14, 1876).—Observations of Maclagan (*Lancet*, 10 and 11, 1876), relative to the use of salicin in the treatment of acute articular rheumatism, induced Senator also to publish his results. Several months previously—in fact, as soon as he was convinced of the therapeutic value of salicylic acid in rheumatism—he had made experiments with salicin. Since it is established that salicylic acid, in order to effect its therapeutic action, must be absorbed by the blood, he thought it possible that this acid, when present in its nascent condition, from the changes which salicin undergoes, might have a more favorable influence than when introduced via the digestive tract. His experience confirmed these theoretical views, for salicin in doses of from two to five or six grains diminishes the temperature in febrile affections just as certainly as salicylic acid. The diseases in which it has thus far been tried are parametritis, pneumonia, typhoid fever, phthisis. Owing to the difficulty in obtaining the drug, he has not as yet used it in the treatment of rheumatism; but from Maclagan's experience it would seem to be equally efficacious with the acid. Its price, even at present, when but little used, is less than that of salicylic acid or its salts, and it could undoubtedly be prepared much more cheaply if the demand for it were increased. W. A.

The Lymph and Lymphatic Vessels of the Liver (Flaischl u. Budgeri: *Leipziger Physiol. Arbeiten*, 1874, xi., 1875).—If the ductus choledochus of a dog is ligated, in a short time a yellow lymph is found in the lymphatic vessels which pass out of the porta hepatis into the receptaculum chyli. In this fluid the biliary acids have been found, while the blood at the same time was free from them. From this F. concludes that the gall, when its natural mode of escape is interrupted, passes into the lymphatic apparatus of the liver, and thence finally via the thoracic duct into the blood. In order to ascertain the way in which this took place, he injected colored fluid into the gall-ducts of rabbits, and saw it under a pressure of 25 mm. pass into the lymphatic vessels. This experiment was repeated with another fluid under a pressure of 30 mm., and in both cases the passage from one into the other system of tubes took place through the substance of the liver. B., from his many experiments with injections, draws the following conclusions in regard to perivascular lymph-spaces in the liver. In the liver there is a system of closed lymphatic vessels which stands in the most intimate relation with the venous blood-vessels. In the lobules there are simple lymph-tubes around the capillaries, so that a direct contact of hepatic cells and blood is prevented, and the passage of anything from one to the other can only be by means of the lymph. At the edges of the lobules, where the blood-vessels unite to form trunks of considerable size, lymphatic vessels are also formed, which lie in walls of the veins and then pass out. W. A.

Operation for Hemorrhoids (V. Starke: *Centralblatt für Chirurgie*, 1876, No. 18).—Care is taken before the opera-

tion to see that the patients have no cough, as it is likely to produce hemorrhage after the operation, and they are also instructed to accustom themselves to lie on the abdomen with the pelvis elevated, so as to favor the flow of blood out of the inferior part of the rectum. The operation is done with the patient in the lithotomy position, and is begun by cutting the sphincter ani muscle. If a fissure also exists, the division of the muscle is made through it; if none exists, the muscle is divided in the middle of the posterior wall of the rectum. The tumors are drawn down one by one, and the ligature applied, incisions having been made through the mucous membrane down to the vessels which enter the tumors. The parts of the tumors beyond the ligatures are then removed with scissors, and at the same time any hypertrophied fibres about the anus, which readily become œdematous and interfere with the healing of the incision through the sphincter. A thick drainage-tube, surrounded with wadding impregnated with salicylic acid, is introduced into the rectum and secured in position by bandages. The end of the tube is covered by a compress, which should also be rendered antiseptic, and which can be removed from time to time; while the tube itself should not be disturbed until the fourth day. Dr. Allingham (St. Mark's Hospital, London) has the statistics of 3213 cases of hemorrhoids treated by ligature, and among them but 5 cases died of tetanus. In the last 1450 no death occurred; and none have died from pyæmia.

W. A.

PATHOLOGY OF THE SYMPATHETIC IN THE CERVICAL REGION (P. Guttmann: *Centralblatt für die Med. Wissenschaften*, No. 4, 1876; from *Berl. Klin. Wochenschrift*, 1875).—In a man with tuberculosis, aged 44, Guttmann noticed that every bodily effort, even when not specially severe, gave rise to a secretion of sweat, which was limited to the left half of the face, or, at most, extended down upon the left side of the neck. The same side of the face, and especially the left ear, became red, and the temperature in the left auditory meatus was some tenths above that of the right side. There were no trophical changes upon the left side, but the eye, while freely movable, was never prominent, its conjunctiva was more strongly injected, and tears were more freely secreted in it than in its fellow. The left pupil was larger than the right, but reacted freely to the stimulus of light, and visual power of the eye was normal. This case is of interest, because the secretion of sweat upon one side only of the face, so far as it is dependent upon the sympathetic nerve, is symptomatic of paralysis of some of its fibres, while the changes in the eye must be looked upon as due to irritation of the fibres involved. There were no changes in the regions supplied by the facial, trifacial, and oculo-motor nerves. There was a slight tenderness upon pressure in the region of the left cervical sympathetic, which may perhaps have been symptomatic of a chronic inflammatory condition of its cord. W. A.

EXPERIMENTAL AND COMPARATIVE PATHOLOGY OF GLANDERS (Bollinger: *Deutsche Zeitschr. Thier. Med.*, ii., s. 76).—Bollinger inoculated a rabbit in both ears with the pus of glanders, and injected the same poison into the abdominal cavity of a goat, and in both cases found that constitutional infection took place, the closing act of which was the appearance of the characteristic eruption of the disease upon the nasal mucous membrane. The infection of glanders is therefore in no way connected with this mucous membrane, nor need this be the first portion of the body affected, but it is possible for the internal organs to be long the seat of the disease before the membranes of the nose are involved. Such cases as these have given rise to the supposition of a period of incubation extending over a period of weeks or even months. During this period of apparent latency the disease is inoculable by a "volatile" infectious substance. In the question as to the relation of glanders and tuberculosis, Bollinger decides for the entire independence and specific character of each process, since all inoculations with the products of either disease gave rise only to the same affection. Inoculation of the blood of animals with glanders gave only negative results. W. A.

THE cinchona-tree has been introduced successfully into the island of Réunion. The cinchona-seeds were first sowed near the coast, and the young trees which grew from them were subsequently conveyed to an altitude of from 2000 to 2500 feet. There they thrive so well that in four years' time some of them grew to the height of twenty-one feet.—*The Popular Science Monthly.*

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, JUNE 24, 1876.

EDITORIAL.

POISONING—ENGLISH LAW.

A CASE of death has recently occurred at Balham, in Surrey, England, which calls to memory the famous trials at Annapolis a year or two since. There is agreement in that the alleged cause of death in both cases was tartar emetic, and also in the loose manner in which the matter has been investigated. Fortunately, in the London case the fault lies with the jurists, and not with the physicians and medical experts. Before death the attending doctors diagnosed positively irritant poisoning, and, after death, antimony was found in abundance not only in the contents of the stomach, but also in the urine of the deceased. The cause of the death was distinctly proven, but the important point whether the case was one of murder, of suicide, or of accidental poisoning, was left in doubt by the coroner. The account of the facts of the case, as condensed from the *British Medical Journal*, is as follows:

"Mr. C. Bravo, a barrister, in the prime of life, and enjoying habitual good health, had been married for a few months, and, so far as it appears, had lived happily with his wife. On the night of Tuesday, April 18, he was taken suddenly ill, and on Friday, April 21, he died. An inquest on the body was held by Mr. Carter, Coroner for Surrey. From the evidence given, it appeared that the deceased, having partaken of dinner as usual at seven o'clock on the 18th, retired to his bedroom about half-past nine o'clock. Some time afterwards, he called a servant, and on Mrs. Bravo's housekeeper and companion going to him (according to her statement), he told her he had taken something, and requested her not to tell his wife.

"At half-past ten o'clock Dr. Moore found him unconscious, breathing heavily, and with such a depressed action of the heart that he had him placed immediately in bed, and administered brandy by an injection, as the deceased was unable to swallow. No drug was administered; but, as the heart's action was very feeble, a mustard-poultice was applied over the cardiac region. There had been vomiting, which Mrs. Cox, the housekeeper, ascribed to some mustard which had been given to him. The first time he vomited was just before he became ill,—*i.e.*, some time between 6.30 and 9.30,—the vomited matter consisting of the undigested food in his stomach, colored with some Burgundy wine, which he had taken at dinner. On the second occasion the vomited matter was dark-colored, and consisted of blood. After about four hours, he recovered his consciousness, and he then complained of severe pain in the abdomen, especially in the region of the stomach. He vomited a large quantity of bloody fluid. He passed also a large quantity of blood and mucus by the bowels, and suffered much from tenesmus. Iced champagne and milk were given to him, but the vomiting came on after an interval of a few minutes; the vomited matters after the first few hours being free from any admixture of blood."

During the period when he was conscious, Mr. Bravo stated positively and solemnly to Dr. Johnson that he had not knowingly taken poison. At the post-mortem examination the usual indications of irritant poisoning were found, and ten grains of tartar emetic were obtained from the contents of the stomach. At the inquest it was proven that every dish partaken of by Mr. Bravo at dinner was shared by his wife and Mrs. Cox, but that he drank half a bottle of Burgundy wine alone. As several hours intervened between the dinner and the first vomiting, it is extremely improbable that the poison was taken then. Still, it is possible; but either the purposed removal of the remnants of the wine by some parties unknown, or else the neglect of the civil authorities to secure the important bottle before it was lost, prevented the absolute settlement of the point. This is the more unfortunate because it is the habit in some of the sheep-raising districts of

England to sell to the wine-merchants bottles which have previously contained metallic poisons used about the sheep, and because severe if not fatal poisoning has been produced by the putting up of wine in such bottles without thoroughly cleansing them. The coroner had seemingly made up his mind before the inquest that Mr. Bravo committed suicide, and actually refused not only to have the case closely investigated, but also even to allow Dr. Johnson to give testimony.

The case is attracting a great deal of attention, and the coroner's action is being severely criticised, so that the matter has been put into the hands of the law officers of the crown for investigation. The family of the deceased are evidently not satisfied, as they have offered a very considerable reward for information as to the purchase of tartar emetic by Mr. Bravo, or by any one about him.

THE importance of the action of the coroner in this case is not apparent unless his position and duties under the English law are understood.

The office is a very old one, its origin being obscured in the gloom of early Saxon history, and certainly having preceded 905 A.D. The coroner is elected by the rate-payers, and holds his office for life, except when guilty of gross misbehavior or notoriously incapable, when the Lord Chancellor may remove him. He is, therefore, irresponsible, and is the sole person who is charged with the investigation of crimes.

The theory of the English law is that the person wronged, and not the state, must prosecute the criminal, and that the prosecution must be of the nature of a litigation. The Attorney-General of England sometimes, it is true, takes the role of a "Public Prosecutor;" but he is not required to do so, and in practice acts only on occasion.

The coroner can act only in cases of sudden or violent death, and not then unless the body be found, so that the inquest can be held. If he cannot interfere, there is no authority who has the right to examine witnesses until a suspected person is actually arrested and brought before a magistrate. It is very plain that when an officer clothed with such exclusive powers as a coroner so manages his jury that practically a secret inquest is held and twelve ignorant men are led to assert that no crime has been committed, there is but little chance of justice being done, especially when the crime is of such a mysterious nature that no one can tell exactly whom to suspect before a thorough investigation is made. Mr. Bravo's case would probably never have been heard of by the general public if he had not chanced to have a couple of barrister friends who, being convinced that he had been murdered, were determined that his murderers should be discovered.

So much attention has been attracted to the subject that it is believed Parliament will so alter the laws as to provide a "Public Prosecutor," such as exists under the French and other Continental codes.

THE *Boston Medical Journal* is editorially "surprised and shocked to find certain medical journals advocating state examining and licensing boards." It seems to us that quiet argumentation would be better than such expression of feeling. No reform was ever pushed to a conclusion without some one being surprised and shocked, and no would-be reform was ever quenched by an opponent's public expression of his excited mental and moral condition.

THE decrease in the number of smallpox cases in the Punjaub since the introduction of vaccination is very striking. In 1869 there were 53,195 deaths; in 1871, 25,534; in 1874, 12,026. That this decrease is due to vaccination is shown from the fact that in the northern districts, where vaccination is in greater favor with the people than in the southern, the rate of smallpox mortality per 1000 is 1.31, while in Umballa and six other southern districts the rate is 2.05.—*The Popular Science Monthly.*

PROCEEDINGS OF SOCIETIES.

THE TWENTY-SEVENTH ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

THE twenty-seventh annual session of the American Medical Association was held during June 6, 7, 8, and 9, at Horticultural Hall, Philadelphia. At eleven o'clock on the morning of Tuesday, June 6, the meeting came to order, the President, Dr. J. Marion Sims, occupying the chair, the Vice-Presidents, Drs. Samuel Lilly, of New Jersey, Wm. Pinkney, U.S.N., and S. D. Seelys, of Alabama, being upon the platform. Rev. Dr. E. R. Beadle offered a prayer, at the conclusion of which a graceful and eloquent welcome was extended to the visiting delegates by Dr. Wm. Pepper, Chairman of the Committee of Arrangements.

The President then read his address. After congratulating the delegates on the privilege of meeting here in this Centennial year and joining in the Centennial celebrations, the speaker said that this city is particularly interesting to this Association, for here it, twenty-nine years ago, was organized. Its first meeting was held in Baltimore, in 1848, when the beloved Chapman was elected President.

The speaker then traced the progress of the society, alluding to the last meeting in this city in 1872, when so much time was lost in the discussion of the woman question. But now, if any woman, entering the medical profession, rises to such a position as to be sent as a State or County delegate, the Association is bound to receive her; and so too with colored physicians.

The President then entered upon the discussion of the various forms of medical education in this country, and the code of ethics.

The three points in the code of ethics upon which he especially dwelt were, the portions relating to advertising, to the patenting of medical instruments, and to the secrecy of the consultation-room. He did not absolutely affirm as his desire that all restrictions upon advertising should be abolished, but certainly led his hearers up to the surmise that such abolition would, in his opinion, be best. He called attention to the arbitrary nature of the lines drawn, and to their variance in different countries and at different times in the same country. Thus, not many years since, a physician who put his office-hours upon his window-sill would have been sent to Coventry by his compeers; but now the practice has become common. Again, in the United States, every physician puts his name and occupation upon his window and door, but none dare advertise; whilst in France the doctor is prohibited from marking his door or window by a sign-board, but is allowed to advertise in other methods. Upon the hardship of the denial of the right of the physician to obtain patents on instruments, Dr. Sims dwelt at considerable length. He cited instances where men had worked in the face of poverty and of all manner of discouragements for years, and their success when it had finally been achieved all went, not for the good of the inventors' families, not for the good of the sick and suffering patients, but for the building up and enriching of the—instrument-maker. He detailed the case of a friend of his who, broken in health, without means for supporting his family, had asked what he should do. The answer, which is at present being acted upon, was, "Leave the profession; become an instrument-maker: it is better than to stay in the profession and attempt to withstand public opinion, unjust and outrageous although it be." Patent and proprietary medicines, such as McMunn's Elixir, are used in large amounts by members of the regular profession in good standing, ay, by the very men who would thus deprive the medical inventor of the right possessed by every cursed son of Adam,—to eat bread in the sweat of his brow. Privacy in consultation was denounced by Dr. Sims as a thing which existed in name rather than in reality, and which ought not to exist at all. An honest man, he thought, would never have reason for hiding that which he had done and said.

On the whole, the code is not up to the standard of professional honor, and at the same time hampers the profession in many ways. It is violated every day, not only by the rank and file, but also by those high in authority; and who dare call them to account? This is the first time that the validity, the constitutionality, of the code has been questioned; but he did not think it worth while that a committee should be appointed to investigate and alter it. Let the code stand as it is, but let it become a dead letter; honorable men do not need it to influence their actions; dishonorable men will not regard it or any other. Let it be the object of the American Medical Association to educate its members up to that higher code, that unwritten law, which is the universal standard of England.

The speaker then discussed syphilis, and urged with great emphasis and force the desirability—more than that, the necessity—for legislation which shall meet and combat this terrible scourge in a scientific and sufficient manner. Some startling statistics regarding prostitution on the Pacific Coast were given; and the speaker concluded his remarks on this subject by declaring that never must the evil be fought by licensing prostitution, and thereby upholding and cherishing vice, as obtains in Europe; a declaration which was received with loud applause.

The plan which he had to suggest was one which did not recognize vice, and which yet would do away with the scourge syphilis. The sea is the great highway for syphilis, and sailors are the great carriers of the poison. A

strict quarantine should be enforced; every steerage passenger and every sailor should be rigidly inspected, and, when the disease is found upon them, should be quarantined.

We want a system which will prevent the importation of disease from abroad, as well as one which will prevent its spread in our midst. The boards of health in cities, suggested the speaker, should be given the same powers to ferret out and to treat diseases of this nature as they now have in dealing with cholera or smallpox.

In conclusion, Dr. Sims said, in this our Centennial year, let us put far from us all sectional feelings, have nothing to do with any outside issues, and confine ourselves to the strict business of the Association.

The following day, after the appointment of a committee on examinations, and a report from the Judicial Council, Dr. R. C. KEDZIE, of Lansing, Michigan, read a paper on Natural Purifiers, the first and most important of which, he contended, were air and water, oxygen being the essential element. He offered the following resolutions, which were adopted:

"*Resolved*, That it is the first duty of States and municipalities—first in importance and first in the order of time—to make a sanitary survey of the water-supply, to preserve it against all unnecessary and avoidable contamination.

"*Resolved*, That no municipality should introduce a water-system without at the same time providing a corresponding and extensive sewer-system."

Dr. A. GARCELON, of Maine, then read a paper on Surgery, which was referred to the Committee on Publication.

Dr. EDWARD SEGUIN made the following report, with a resolution attached, which was adopted, in the name of a previous committee:

"Since several years, the American Medical Association has given its support to a measure of great interest for those who have at heart the advance of physic, namely:

"The establishment of uniform means of observation, and of medical records, for the physicians of all countries.

"This action of the American Medical Association has been expressed by the adoption of successive resolutions, and by the sending of delegates charged with the mission of advocating this reform:

"In 1873, to the British Medical Association, meeting in London; and to the French Association for the Advancement of the Sciences, meeting at Lyons.

"In 1874, to the British Medical Association, meeting at Norwich; and to the French Association for the Advancement of the Sciences, meeting at Lille.

"In 1875, to the International Medical Congress, meeting at Brussels.

"In 1876 next (September), the same congress will meet in this very place; and now the American Medical Association is called to decide what position it will assume in this matter.

"Will it recede from its former position, and leave the task to second-hand promoters, or will it continue its initiative before the International Council?

"This is not only a question of pride for the Association, it is also one of justice due to the American physicians at large. If the constitution and by-laws of this Association prescribe an annual transfer of its meetings from one part to another of this vast country, it is to give us opportunities to study and express the wants of the whole profession. Of these wants, none has been found to be more deeply felt than the desire of partaking, as givers and receivers, in the discoveries of our art. But this want is not ours alone; it is universal; and if it succeed, the American Medical Association will deserve the thanks of all for having planned, and carried into execution, the most important instrument of internationalization of medical progress.

"Therefore the Association should resolve to charge its delegates of former years to continue to advocate the uniformity of means of observation before the various medical societies, and particularly at the next International Medical Congress, and to report next year what success they may have met."

Drs. Seguin and Bowditch were appointed additional delegates to the International Congress.

A letter was read which had been received from the Medical Society of Victoria, asking for a list of the medical colleges of the United States recognized by the American Medical Association. This gave rise to a very active debate, attended with the wildest confusion, the President being completely unable to control the Association, and at times seemingly being forgetful of all parliamentary rules. The expression of opinion was general that the colleges were a disgrace to the profession, and their quarrels still more so; that when the Association some years since refused to receive delegates from the colleges it did away with whatever pretence of authority it had over the colleges, and that for the Association now to attempt to make out a list of the regular and irregular colleges would be unwise, if not impertinent. After a considerable time, an amendment to a resolution already before the house was offered by Dr. Lilly, of New Jersey, to the effect that the letter should be referred to the Judicial Council for answer,—which was carried; but, as the President did not afterwards put the original motion, it is doubtful whether, under strict parliamentary rules, any legal action whatever was had. Subsequently, various resolutions were offered, and points of order raised, such points being the only order in the vicinity of the meeting. At last Dr. Toner, of Washington, cut the Gordian knot by offering a resolution to lay

the subject on the table,—which was carried unanimously.

On the next day, Thursday, June 8, after the reading of an excellent paper on Obstetrics, by Dr. S. C. Busey, of Washington, D.C., the roll was read and confirmed, various trifling exceptions being taken to certain names. On the reading of the name of Sarah Hackett Stevens, representing the Illinois State Society, Dr. Brodie, of Detroit, moved that that and all such names be referred to the Judicial Council. A motion that this resolution be laid upon the table was carried by a large vote, amidst considerable applause; and Sarah H. Stevens was therefore received as a delegate.

Dr. HENRY A. MARTIN, of Boston, offered a resolution that the subject of bovine or animal vaccination is an important one as compared with the usual arm-to-arm practice, and that a committee be appointed to report upon the subject at the next meeting of the Association.

On Friday, June 9, the fourth and last day of the meeting, Dr. TONER, of Washington, offered the following resolution, which was unanimously adopted:

"*Resolved*, That members of the medical profession who in any way aid or abet the graduation of medical students in irregular or exclusive systems of medicine are deemed thereby to violate the spirit of the ethics of the American Medical Association."

Dr. H. C. WOOD, of Philadelphia, offered the following, which was adopted:

"*Resolved*, That a committee of three be appointed by the Chair, to obtain from Congress an appropriation for the publication of the Subject Catalogue of the National Library, and that the State societies are requested to take such action as may be deemed fit to further said object."

The Committee on Nominations presented their report, which was adopted.

For President.—Dr. Henry J. Bowditch, of Massachusetts.

Vice-Presidents.—Dr. N. J. Pittman, of North Carolina; Dr. Franklin Staples, of Minnesota; Dr. Joseph R. Smith, of United States Army; Dr. Samuel C. Busey, of Washington, D.C.

Treasurer.—Dr. Casper Wistar, of Pennsylvania.

Librarian.—Dr. William Lee, of the District of Columbia.

Committee on Library.—Dr. Johnson Eliot, of the District of Columbia.

Assistant Secretary.—Dr. J. H. Hollister, of Illinois.

Committee of Arrangements.—Drs. N. S. Davis, J. W. Freer, H. A. Johnson, T. D. Fitch, H. Jones, Joseph P. Ross, and Leslie Curtis.

Committee of Publication.—Dr. W. B. Atkinson, Chairman; Drs. T. M. Drysdale, Albert Fricke, Samuel D. Gross, Casper Wistar, Richard J. Dunglison, all of Pennsylvania, and Dr. Milham, of the District of Columbia.

Medical Council.—Drs. N. S. Davis, of Illinois; E. L. Howard, of Maryland; W. O. Baldwin, of Alabama; H. W. Bean, of New York; A. N. Talby, of South Carolina; J. R. Logan, of Georgia; D. W. Stormont, of Kansas. This council is to take the place of the seven whose terms expire at this meeting. The rest of the present council is continued.

The time and place of the next meeting were fixed for the first Tuesday in June, 1877, at Chicago, Ill.

Dr. BELL, of Iowa, offered the following resolution, which was adopted:

"*Resolved*, That there be appointed a committee of three persons, members of this Association, in each of those States where there has been no action taken for the establishment of boards of health, to urge upon those States the necessity of the establishment of such boards."

The hour for adjournment having arrived, the newly-elected President, Dr. Bowditch, was conducted to the platform, when Dr. J. Marion Sims, the retiring President, read his farewell address. He said, "The moment draws near when we must say farewell. The events of this session will soon become history. In after-years we shall doubtless note changes in our organic laws that may be traced back to this meeting."

In closing, the doctor, in speaking of the Southern delegation, said, "With returning prosperity, our Southern brethren will be found working together shoulder to shoulder with us. Where once there was bitterness and hate, there is now peace and love. We have risen above all sectional feelings, which is as it should be; and now, in this Centennial year, Massachusetts and South Carolina can join hands in this peaceful hall of science." The doctor here turned to the newly-elected President and clasped his hand,—which action was vociferously applauded. The speaker then introduced the new President to the Convention, saying,—

"May the blessing of heaven rest upon his head, on our whole country, and upon every member of this Association."

Dr. Bowditch then, in a brief address, returned thanks to the Convention for the honor conferred upon him, hoping that the pleasant relations now existing would continue.

Dr. E. R. SQUIBB offered the following preamble and resolution:

"*Whereas*, The usual time for a decennial revision of the United States Pharmacopœia is drawing near; and

"*Whereas*, The plan of revision and publication in force in 1870 may not now be the best that could be devised; therefore,

"*Resolved*, That the American Medical Association take the whole subject of the National Pharmacopœia into consideration, for a review of its management; and, for the present time, with especial reference to the following questions:

"First. Whether the present plan of decennial revision and publication be practically sufficient for the needs of the Materia Medica and Pharmacy of the present time; and, if not sufficient, whether a plan could be devised which might offer probable advantages enough to justify an attempt to disturb the present one.

"Second. Whether this Association be the proper custodian in this country of the interests involved in the National Pharmacopœia; and, if it be the proper source of the National Codex, whom can it invite to co-operate with it in the work?

"Third. If it be a work for this Association, in what way can its details be wisely undertaken with any prospect of material improvement upon the present plan?

"*Resolved*, That, in order to facilitate mature and general deliberation upon so important a subject, the final discussion of these resolutions be laid over for at least one year, and that the matter be recommended to the President of the Association for consideration in his annual address to the meeting of 1877."

The resolutions were adopted as read, and the Convention adjourned *sine die*.

EIGHTH ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN MEDICAL EDITORS.

THE meeting was called to order on Monday, June 5, 1876, in Philadelphia, by the President, Dr. A. N. Bell, of New York. His annual address was devoted mainly to an able and eloquent appeal for a higher standard of requirement for admission to the profession of medicine in this country. The facilities offered by most of our medical colleges were stated to be abundant, but the time of attendance required of the student, two terms of four to six months each, was absurdly insufficient to enable him to profit intelligently by the advantages offered.

Dr. H. C. Wood fully endorsed the views advanced in the President's address. In the early days of medical instruction in this country, the colleges attempted to teach only the fundamental branches; and those they taught well and thoroughly. Now the schools attempt to cover the whole vast field of modern medical sciences, including the various specialties, and still expect the student to comprehend all of this in the old four- or six-months' session. The result was that the graduates of to-day went out with a superficial smattering of all, but really thoroughly grounded in no one department. He believed in supporting Harvard and such schools as had had the courage to come boldly forward and institute the reforms of a three-years' graded course, until their success should compel the others to follow.

Dr. Byford, of Chicago, counselled moderation. He thought that most of the colleges were doing very well,—as well as they could. Give them time enough, and they would accomplish all the needed reforms. In reference to the deficiency of preliminary education on the part of medical students, he thought that the practitioners who sent these imperfectly-prepared students to the colleges were in the main responsible. Let the colleges have better material sent them, and they would turn out better-educated physicians.

Dr. Palmer stated that in introducing this requirement of preliminary examination into Michigan University, they had found it necessary to reject several applicants. The preceptors of these gentlemen were very much offended, and the students easily gained admission at other schools, where no such preliminary acquirements were necessary.

The question of State laws regulating the practice of medicine was discussed at some length by several members. Dr. Connor, of Detroit, said that he had taken opportunity to examine somewhat carefully the effects of the laws now in force in Canada, which require each practitioner of medicine to pass examination by a mixed board containing representatives of the different schools of medicine, homœopathic, eclectic, etc. The result, he stated, had been that those districts had been overrun with a class of unprincipled quacks and charlatans, who possessed sufficient knowledge to pass the examining board, and were thus licensed to practise, and could compel recognition and admission to all medical societies, while they were under no moral or ethical restraints. Their advertisements and posters were to be seen on every lamp-post and fence-corner throughout the country. He thought that the profession must establish and maintain its own requirements for admission to its ranks, and its own ethics; also, that some standard of acquirement other than the possession of a simple college diploma should be required for admission to the State medical societies and to the American Medical Association. The following resolution was offered, and unanimously adopted:

"*Resolved*, That we express our approval of such medical schools as require preliminary examinations and a three-years' graded course of instruction with stated examinations."

Dr. H. C. Wood was then elected President for the ensuing year; Dr. F. H. Davis, Permanent Secretary.

ASSOCIATION FOR THE RELIEF OF IDIOTS AND THE FEEBLE-MINDED.

AN interesting meeting of the Superintendents of American Institutions and Asylums for the Feeble-Minded and Idiotic was held last week, at the Pennsylvania Institution, near Media, resulting in a full discussion of the objects and condition of this comparatively new work, and the organization of a National Association to advance its interests. Seven gentlemen, representing the eight Institutions already founded and in successful

operation, were present, from States as follows: Massachusetts, New York, Connecticut, Pennsylvania, Ohio, and Illinois. The position assumed from the experience of those present is, that legislation in behalf of this afflicted class should be no longer experimental, and that public moneys whenever expended should be directed at once to suitable buildings and premises expressly for the purpose intended, it having been proven in Germany, England, and America, that a fair percentage of admissions (from 10 to 20 per cent.) can be rendered self-supporting, that few cases are not capable of some amelioration, and that the habits of all can be improved so as to render the patients happier themselves, less afflictive to others, and more cheaply and humanely cared for in asylums than scattered in the community.

Many questions of importance lie over for consideration at the next meeting, to be held in Columbus, Ohio, June 5, 1877: such as —Idiocy and Imbecility, how far preventable or capable of diminution? To what extent should the education and training be directed towards industrial development? Whether adult asylums can be wisely managed as establishments for manufacturing or agricultural industry. The best modes of treating and providing for those who only need supervision, shelter, and kind care.

It is perhaps too early to expect reliable statistics of a social and psychologic character from gentlemen who have been of necessity immersed in the details of building for and training this hitherto hopeless class. Excepting annual reports, and the interesting and valuable work on Idiocy by Dr. E. Seguin, no contributions have been made to the literature of the subject in this country. It is to be hoped that, with organization and increasing opportunities for observations, something will yet come from this new and broad field of scientific research.

The officers of the Association for this year are: President, Dr. E. Seguin, of New York; Vice-President, Dr. H. B. Wilbur, of Syracuse, New York; Secretary, Dr. Isaac N. Kerlin, of Media, Pa.

REVIEWS AND BOOK NOTICES.

ATLAS OF SKIN DISEASES. By LOUIS A. DUHRING, M.D., Professor of Skin Diseases in the Hospital of the University of Pennsylvania. Philadelphia, J. B. Lippincott & Co., 1876.

This work has been so widely announced in advertising columns that its scope must be well known by most of our readers. The fasciculus lying before us contains, besides excellent letter-press, four plates, about two-thirds life size, representing Eczema erythematosum, Psoriasis, Lupus erythematosus, and Syphiloderma pustulosum, and is to be followed by from seven to nine parts, each containing the same number of plates. It is usually wisest to buy the best, but especially is it so when the price or value of the thing bought is such that it is hardly probable that a duplicate will be purchased in a lifetime. We believe Dr. Duhring's work to be the best in the market. It comes directly into competition with that of Dr. Fox, and of course challenges comparison with it. The care bestowed upon the drawing and coloring is, however, so far superior in the American atlas that we feel it almost a wrong to Dr. Duhring to allow that any fair comparison can be made between his work and that of Dr. Fox. Moreover, Dr. Duhring promises that all his figures shall be originals, not reproductions of pictures with which we were familiar during our medical boyhood, as occurs in the atlas of Dr. Fox.

The four plates before us are very fine, and portray the diseases represented in a faithful and truly life-like manner. With their successors they are to represent the skin-affections, as modified by the peculiarities of the climate and race, that vex our Continent. As an instance of this, we may mention the plate before us of eczema erythematosum, a disease which is common here, but so infrequent in Europe that none of the foreign atlases contain examples of it. Altogether, the advantages of Dr. Duhring's atlas are such that it ought to secure the American market, and find its way even to the medical libraries of Europe.

We are familiar with four skin atlases other than that of Dr. Fox: a very poor and abortive one, published by Hebra and Bärensprung, a superb one by Hebra alone, a handsome one by Wilson, and the well-known publication of the Sydenham Society. Except, perhaps, in the number of the plates, Dr. Duhring's work promises to be in no whit inferior to the best of these. We believe Hebra's large atlas is now held at over two hundred dollars per copy, and is very hard to get even at that price; even if it were in the field at a reasonable sum, we should have no hesitation in urging any of our readers who might be inclined to purchase one or the other to select the American production, feeling that in so doing we should not only be giving to Dr. Duhring's work the praise it merits, but should also be furthering the interest of our subscribers.

LES CAUSES DE LA GRAVELLE, ET DE LA PIERRE, ÉTUDIÉES À CONTREXEVILLE, PENDANT NEUF ANNÉES DE PRATIQUE MÉDICALE. Par le Dr. DEBOUT D'ESTRÉES. In 8, de 135 pages. A. Delahaye et Cie., Paris, 1876.

This is an interesting brochure just issued from the Paris press, in which the author divides his subject into two parts. The first is devoted to the etiology of gravel, or the causes

influencing the production of calculus-formations in the kidney. It shows the greater frequency of these affections in the male, makes a comparison of the various kinds of calculi, the relative proportion of uric-acid formations over the other varieties, and investigates the influence of habits, mode or manner of life, hereditary tendencies, with moral and physical causes, as factors in the production of these affections.

The second portion is taken up with a description of the passage of gravel from the kidney through the ureter, the changes which take place, pathological results, its sojourn in the bladder, and expulsion through the urethra.

The author also devotes a section of his work to the manner in which calculus is formed upon adventitious substances which may have been introduced into the bladder either by accident or design. The causes inducing alternating or varying layers of deposit upon nuclei within the bladder, the influence of certain waters as preventives of the formation of gravel, with their action upon the economy in changing a so-called stone diathesis, are freely considered.

He also gives some interesting experiments illustrating the solvent properties of certain medical spas, especially those of Contrexeville, Vichy, and Vals, showing the rapid diminution in size and weight of calculi when placed in the Pavilion Spring of Contrexeville; and brings to bear a number of interesting clinical observations, showing the promptness with which these waters have relieved patients who have resorted to them for their curative properties in these affections.

His views upon the spontaneous fragmentation of stone within the bladder are interesting; and his suggestions of a preventive treatment against a reformation of calculi in persons who have been relieved either by expulsion of the calculus or its removal by operation, are not without value.

As a whole, the work is one which will fill a vacant niche in the etiology of this subject, and well deserves a careful perusal.

The author's extended experience in the use of medical waters, especially those of Contrexeville, which have enjoyed a well-deserved reputation for their curative properties in chronic affections of the genito-urinary organs, renders his opinions valuable; and in this little work he has treated the subject in a masterly manner.

Like all publications from the well-known establishment of Delahaye & Co., this book is well produced. C. H. M.

ON CERTAIN ENDEMIC SKIN AND OTHER DISEASES OF INDIA AND HOT CLIMATES GENERALLY. By TILBURY FOX, M.D., F.R.C.P., and T. FARQUHAR, M.D. With five plates. Octavo, pp. 72–288. London, J. & A. Churchill.

Some four or five years ago, a "scheme for obtaining a better knowledge of the endemic skin-diseases of India" was drawn up by Drs. Tilbury Fox and Farquhar, copies of which, to the number of several hundred, were distributed, through the agency of the British Government, to physicians in India and other of the colonial possessions of England, and also to medical officers of the British navy.

The "scheme" included short descriptions of some fifteen diseases, many peculiar to hot climates, others more generally distributed, aiming to present the results of the latest European investigations; and, in connection with the description, a series of questions intended to cover those points on which further information was desirable.

Replies were received from a large number of the medical men addressed, and these replies, presented in a condensed form, and prefixed by an analytical report, form the bulk of the volume before us. Most of the affections discussed in this report are unknown in the United States, even by name. Others, however, are more or less prevalent among us; and the experience of so many observers as regards these affections cannot fail to embody much information of interest to the American physician. The volume opens, as we have said, with a special analytical report, based upon the "replies," and expressing the results of the various inquiries. The different affections are taken up in order: morphœa, scleroderma, frambœsia or yaws, Delhi, Aleppo, and other "boutons," keloid, fibroma, ainhum, elephantiasis Arabum, fungous foot, leprosy, leucoderma, tinea circinata, Malabar itch, pityriasis versicolor, lichen tropicus, and pellagra, each receives a notice, with due reference to what is called the "appendix," containing the original reports. The reader, we are inclined to think, will feel disappointed if he goes to these reports expecting to gain new and fresh information upon such diseases as keloid or fibroma. No facts of importance appear to have been developed regarding these and most of the other more familiar affections, excepting elephantiasis Arabum. In reference to this latter, which is, in fact, more fully treated than any other of the various affections, having one hundred pages to itself, a number of new and interesting facts are recorded. Several of the reporters give analyses of large numbers of cases,—more than seven hundred in the aggregate,—and considerable information is imparted as regards the etiology, clinical history, and, in a less degree, the treatment of the disease. Very little is said about the pathology, especially the pathological histology, of this affection; and this same defect is noticeable in the discussion of the rarer and more peculiarly Oriental diseases. It is especially unfortunate that this lack of precise information as regards pathology extends to diseases like the Aleppo bouton, which has been declared simply a form of syphilis, and

as regards the essential nature of which further knowledge would be desirable.

It is perhaps too much to expect of medical men in remote regions that they should furnish accurate reports upon the pathological anatomy of the diseases which come under their observation. At all events, the clinical portions of the report are certainly very interesting, and, together with the very life-like representations of Aleppo sore in chromo-lithograph, and the wood-cuts illustrative of other affections, form a valuable contribution to medicine in the department of dermatology.

A. V. H.

DISEASES OF THE NOSE AND ITS ASSOCIATE CAVITIES. By W. SPENCER WATSON, F.R.C.S., Eng. B.M., London, Surgeon to the Great Northern Hospital, Surgeon to the Royal South London Ophthalmic Hospital, etc., etc.

This work, which we have just received from the publisher, H. R. Lewis, London, adds another to the multitude of good books for which the profession at large is indebted to the workers in special fields of practice. In the present volume, the author, not content with a very exhaustive text, has supplemented it with an appendix, in which is recorded a large number of most interesting and instructive cases, the whole forming a dissertation on nasal diseases which would seem to leave but little to be said on the subject.

Commencing his book with a well-digested plan of the surgical anatomy of the parts, he passes to the subject of rhinoscopy, and, this important matter carefully studied, launches at once into the study of the diseases to be treated.

The thorough familiarity shown by Mr. Watson with the literature of his subject increases greatly the confidence one is disposed to place in his text; as to know fully what others have said and written upon a matter, is to afford a writer the best possible measure of the value of the experiences he may incline to record. In the present case we are made to feel that our author is entire master of the literature of his subject, and that he understands fully the value of the illustrations and experiences quoted from his own practice as well as from that of other surgeons. We notice frequent reference to Dr. Garretson's "System of Oral Surgery" throughout the work.

GLEANINGS FROM EXCHANGES.

TREATMENT OF CEREBRO-SPINAL MENINGITIS.—Dr. Bessey urges the local employment of leeches in cases of this disease. He says,—

Hyperæmia, or congestion of the coverings of the brain and spinal cord, or, in the more violent cases, extravasated blood, or effusion in lingering cases, seem to mark the anatomical lesions produced. Granting this state of things to exist, there therefore remains, to my mind, no more rational treatment than leeching or cupping, calomel, and the use of the bromides, to prevent cerebral congestion. The danger to be apprehended appears to be death from cerebro-spinal irritation, causing convulsions, cerebro-spinal apoplexy from extravasation of blood, or general depression of vital function, and emaciation, ending in paralysis and death.

I believe the disease to be more hyperæmic than specific (although we may see it only in this character), and hence I look upon local depletion by means of leeches as indispensable in its treatment.

Some have recommended opiates; these I would fear to use, as likely to add to the congestion or hyperæmia.

The tinct. hyos. I deem preferable, and consequently use it, with liq. ammon. acetatis, as a febrifuge and diaphoretic. The bromide of potassium in full doses will diminish centric irritation and lessen the danger of convulsions, while it is supposed to produce tonic contraction of the blood-vessels in the meninges and the cerebral mass. Hydrate of chloral I like, and would use it as a soothing agent, but not as a curative one, it having no power to relieve congestion. Calomel I believe to be useful in this as in inflammations of other serous sacs. The deafness is no doubt due primarily to congestion, but when it becomes permanent it may be due to lesion of nerve-tissue, or effusion into the mastoid cells, or thickening of the covering of the auditory nerve from congestion. Dr. Chagnon mentions the occurrence of this lesion in a case in 1870, as complete deafness after convalescence; leeching would probably have relieved it and prevented its becoming permanent.

Quinine is a remedy I should think *contra-indicated*, from its proneness to produce, and therefore add to, the deafness and cerebral congestion. This it did for me, aggravating the general symptoms. Further, the disease does not always appear to occur epidemically, and I think should be divided into the simple and malignant, or specific and non-specific, as it is attended or not with a petechial rash or sudamina.

SUBACUTE CYSTITIS FOLLOWING PARTURITION (*The Boston Medical and Surgical Journal*, February 3, 1876).—Dr. W. L. Richardson reports four cases of subacute cystitis following parturition. They presented some points in common. In all, more or less protracted pressure was exerted, during the progress of the labor, by the child's head upon the bladder. In two of the cases forceps were used to hasten the delivery. In the two cases in which the cystitis was best marked from the outset, the invasion of the disease was announced by a chill. In the case where

there was a relapse of the disease, a second chill preceded the rise in the temperature and pulse. In all the cases there was great dysuria, which in most of them was the chief symptom complained of by the patient, apart from the general constitutional disturbance. In three of the cases there was marked tenderness over the region of the bladder, and the patients complained of more or less pain referred to the same spot. In one case the pain was so great as to render the use of morphia necessary in order that the patient might obtain any rest or sleep. In the severer cases more or less nausea and vomiting were noticed during the progress of the disease. The clinical history of the lochia and milk was normal from first to last. In all the cases the urine contained a large amount of mucus and more or less pus. In only one case was blood found in the urine on a microscopical examination. In none of the cases was the constitutional disturbance as great as would naturally have been expected from the daily variation in the record of the temperature, pulse, and respiration. At the evening visits the patients complained of feeling feverish and sick, but in the mornings declared themselves almost well, except for the dysuria or the local pain and tenderness on pressure over the pubic region. The record of the pulse, temperature, and respiration was, in all these cases, very peculiar, being characterized by a low morning and a high evening range.

The only treatment adopted was the application of poultices over the region of the bladder, until the pain and tenderness had in a great measure subsided; the administration of morphia, either in suppositories or by the mouth, for the relief of the pain or dysuria; and finally, after the more acute symptoms had subsided, the bladder was washed out with warm water, and later with a weak solution of carbolic acid and water. In all the cases the washing out of the bladder was followed by a relief, and by a sudden disappearance of all the symptoms complained of, that was very striking.

REVACCINATION (*Boston Medical and Surgical Journal*, February 3, 1876).—Dr. William B. Davis, as the result of his experience during the late epidemic of smallpox in Cincinnati, has come to the following conclusions:

(1.) Exposure to infection and to intense epidemic influence largely increases the susceptibility of the system to the influence of vaccine virus, and accounts for the unusual number of successful revaccinations during the existence of an epidemic.

(2.) Variola and varioloid give no more protection from a recurrence of variola than vaccination.

(3.) The cicatrix is not a safe criterion of the degree of protection given by the vaccination from which it resulted.

(4.) It is advisable to revaccinate upon every exposure to infection, unless it has been done recently with success.

(5.) Those who are successfully revaccinated are to some extent susceptible to the variolous influence; not that all would take the infection (for an epidemic never attacks all the unprotected), but that they are in some danger is proven by the results of revaccination in the hospitals and standing armies of Europe. In the Prussian army the annual deaths from smallpox, before revaccination was introduced, averaged one hundred and four. During the twenty years immediately succeeding the establishment of systematic revaccination there were but forty fatal cases.

DIAGNOSIS OF PERI-NEPHRITIC ABSCESS IN CHILDREN (Pamphlet, pp. 20, N. Y., 1876).—Dr. V. P. Gibney, after detailing nine cases of this obscure and interesting disease, comes to the following conclusions as to its symptoms and diagnosis:

In typical cases the disease generally begins with a rigor or two, febrile exacerbations more or less severe according to the acuteness of the attack, lancinating pains in the lumbar region, loss of appetite, and general indisposition. In fact, the invasion does not differ materially from that of other acute inflammatory lesions, unless perhaps the pain be more localized, and, if the child be very young, the locality of the pain is not discovered. During the first week the symptoms change very little, except in degree. Constipation is always present. Very soon we have preternatural immobility of the spine, a stooping forward, with elevation of the shoulders. After a week or ten days, spasm of the psoas muscle occurs, the gait becoming characteristic of that so commonly regarded as the second stage of hip-joint disease. The urine is of high specific gravity, and is loaded with urates. The tumefaction appears, and the pain becomes excruciating. If an exit be given to the pus, a speedy recovery follows; if this be delayed and the contents of the sac be really pus, it burrows along the cellular tissue, producing an immense abscess, a spontaneous opening is effected, and the convalescence is protracted. If, on the other hand, the inflammatory process has not resulted in suppuration, the contents are most likely serum, and resolution is effected.

In the matter of diagnosis, the points upon which he has placed the most reliance are the acute nature of the attack, pain in the region of the kidney, flexion of the thigh, the prone position, tenderness on pressure when the child is old enough to give any reliable testimony, the tumefaction, and, finally, the fluctuation. To analyze these symptoms and differentiate from those diseases which simulate very closely the one in question is not always free from difficulty.

In peri-typhlitis the pain and tenderness are chiefly confined to the iliac region; there is pain more or less of a colicky nature, and the

affection is generally associated with typhlitis. Should the tumor in peri-typhlitis appear in the lumbar region, then a differential diagnosis could not well be made; and practically it would be unimportant, for in that case we would most likely have a peri-nephritic abscess complicating the peri-typhlitic. In hepatic abscess the function of the liver is deranged, the tumor is located within that region and is movable with respiration. The symptoms of acute nephritis are like many of those now under discussion. From the history and the examination of the urine the question can be definitively settled. Renal calculi might mislead one, but the absence of fever, the paroxysmal nature of the affection, and the urinary examination should guard one against error. Idiopathic psoitis in children and aneurism of the abdominal aorta are so rare that they need not be considered. Intra-thoracic lesions can be excluded by a physical examination.

In diagnosing this affection from hip-disease we should depend principally on the position of the limb, the duration of this position, the involvement of the psoas alone in the contraction, and the absence of tumefaction or induration about the trochanter or groin. The diagnosis from spinal caries is almost impossible, and can only be made by paying attention to all the previously mentioned points in conjunction with the history of the case.

The prognosis in primary uncomplicated peri-nephritis is very favorable. All of Dr. Gibney's patients recovered in from two to six months. In seven out of the nine there was no discoverable cause of the disease.

Causes of Death in Ewes during and after Parturition (*Boston Medical and Surgical Journal*, May 4, 1876).—Our English exchanges give abstracts of a report recently made to the Obstetrical Society of London, by Jonathan Hutchinson, F.R.C.S., on certain causes of death in ewes during and after parturition. The results of Mr. Hutchinson's investigations seemed to prove that the death of the fœtus before delivery was of much more serious consequence in sheep than in the human subject, and also that it was far from infrequent. The lamb, after death, appeared to become a cause of metritis, there being but little tendency to its expulsion. If metritis occurred it was apt to run a rapid course, gangrene frequently ensuing, during which rupture of the walls often took place. Peritonitis and pyæmia not infrequently occurred in connection with metritis. Puerperal metritis and peritonitis, or the consequent pyæmia, seemed to be invariably accidental, and not the result of contagion. They occurred in animals treated in the open air, and yet ran a course almost precisely similar to the parallel maladies in the human subject. Ewes during lactation, in consequence of the use of cotton cake,—an improper article of food,—seemed liable to a sort of idiopathic tetanus; but no such unfavorable results followed its use in lambs, hoggets, and undelivered ewes. Young lambs were liable, independently of any known source of contamination, to the occurrence of purulent phlebitis of the umbilical vein, with the consequent phenomena of pyæmia,—a fact which gave strong support to what Mr. Hutchinson believed to be the true hypothesis of all pyæmia, strictly so called.

Treatment of Severe Sprains (*The Lancet*, April 29, 1876).—Mr. Sampson Gamgee gives a case of sprain of the ankle treated by compression, with very satisfactory results, and says, "Severe sprains are often serious fractures, though no bone be broken, or only a bit may be chipped off; the ligaments and fasciæ are ruptured, blood being extravasated into the joints, into the sheaths of tendons, and for some distance not infrequently between the layers of muscles. The swelling is great, the pain intense. The orthodox treatment by leeches and fomentations is valueless, compared with circular compression and perfect immobilization. Not only can the patient bear well-applied pressure from the first, however great the swelling and acute the pain, but it may be laid down as a general proposition, to which I have never seen an exception, that in severe sprains effusion is most surely checked, and, once it has occurred, its absorption is most rapidly promoted, while pain is most effectually relieved, by pressure and immobilization. It is as true now as when Velpeau taught it, that 'compression is the sovereign resolvent in contusions with infiltration and swelling.'"

Acute Inflammation of the Cellular Tissue in the Supra- and Post-Auricular Region (*The Boston Medical and Surgical Journal*, May 18, 1876).—Voltolini calls attention to a peculiar circumscribed inflammation of the cellular tissue above and behind the auricle, which is occasionally met with, and which is not mentioned in any of the text-books on the ear. It consists of an acute inflammation of the subcutaneous cellular tissue just above and behind the ear, circumscribed in extent, wholly unconnected with the ear itself, and not dependent on inflammation of the meatus, auricle, or mastoid cells, limited entirely to the bald spot near the ear, with no tendency to spread over the scalp, but with a tendency to affect both sides at the same time. It begins with very severe pains in one or both sides of the head, which often extend into the face and teeth. These symptoms, often mistaken for toothache, are followed by febrile disturbance for a few days, and the pains then become more localized above and behind the ear, and the skin in this region becomes red, glistening, swollen, and intensely sensitive to pressure. From this stage the inflammatory process, unless checked, goes on, with the most intense suffering, to

the formation of pus, which, unless evacuated artificially, forms burrowing abscesses, and these may exhaust the patient, or the pus may perforate the upper and posterior wall of the meatus, and so find an exit through that passage. If wholly neglected, as the result of the burrowing pus, numerous fistulæ may form in and about the ear; but there is no tendency to an affection of the bone. Generally, however, the inflammation is confined to the region above and behind the auricle.

The treatment consists in leeching freely, or, better still, in a free incision through all the swollen tissues with a knife, even if the inflammation has not gone on to the formation of pus, and after this in continual poulticing. If pus has already formed, a free evacuation with the knife is the only possible course. Three cases are given by Voltolini, one of which proved fatal by exhaustion, from the patient refusing to allow the original abscess to be opened.

Obturator Hernia (*The Lancet*, April 22, 1876).—Dr. Goodhart reports the case of a woman, æt. 65, who had first come under treatment some nine months previously, suffering from constipation of nine days' standing, and pain in the left side of the abdomen. She was emaciated, and coils of intestine were visible through the parietes. Peristaltic movements were noticed. After treatment by opiates she became apparently well, but was affected seven months later with symptoms of obstruction. She had now double, but reducible, femoral hernia, but had no symptoms pointing to obturator hernia. Repeated examination per rectum failed to establish any evidence of malignant disease, but she gradually sank, dying in about two months. There was found suppurative peritonitis, and an obturator hernia on the left side, including nearly the whole circumference of the bowel (small intestine), which was firmly adherent to the sac. There was some ulceration opposite to the seat of obstruction. Dr. Goodhart remarks upon the long duration of the obstruction, and refers to cases in which the onset of pain in cases of obturator hernia long preceded evidence of sudden obstruction. In such a case operative measures would have certainly failed to afford relief, judging by the light of the post-mortem examination. He notices also the fact that such hernias are seldom diagnosed, and that it is not uncommon for emaciation to occur in old subjects.

A Simple Mode of Extracting Calculi arrested in the Urethra (*The Lancet*, May 13, 1876).—Dr. J. C. Ogilvie Will reports a case in which he extracted a small calculus from the urethra, and describes his method as follows:

In this case a simple loop of wire succeeded when a complicated apparatus, however useful in ordinary cases of bodies arrested within the urethra, could not be used. Though it may appear rather a difficult matter to encircle a urethral calculus with a loop of wire, it is not so; and if we remember that the urethra is not a tube through which any body can be easily pushed along, but a closed valve or long chink, whose sides lie in close contact, the reason of the simplicity of this manœuvre will be readily understood. The difficulty is not in the snaring, but in the retaining of the hold, the loop being apt to slip, especially if the foreign body be a very small one. To overcome this difficulty Dr. Will has had a slender silver canula constructed, which is to be used with the wire loop. The latter should first be passed well beyond the calculus, and the canula slipped over the projecting ends of the wire and its point brought to bear against the stone, by which it will be steadied; then, by making slight traction on the free ends of the wire, the loop will be brought against the calculus, which will thus be securely fixed between the wire and the mouth of the canula. The ends of the wire may then be twisted round the rings with which the canula is provided at its proximal extremity, and the apparatus withdrawn. By this mode of procedure, the foreign body being tightly fixed between the loop and the mouth of the tube, it cannot possibly slip out, and its extraction can be accomplished with the greatest ease. Although the canula referred to is the most suitable instrument for the purpose, an efficient enough one can be extemporized by cutting a bit out of an old catheter; and in some cases the loop of wire will of itself be all-sufficient, as it was in the case just mentioned, and also in that of a child who had a calculus arrested at the bulb, and where a loop of wire was passed behind it, and slight pressure applied to the perineum to steady it, then by a jerking movement the calculus was brought well within the penile portion of the urethra, and by reapplying the wire and again jerking it was thrown out.

Secretion and Discharge of Urine during Fœtal Life (*The Lancet*, May 13, 1876).—At a meeting of the Royal Medical and Chirurgical Society, Mr. Henry Morris read a paper in which, after detailing a case of congenital hydronephrosis, and considering the general subject, he asserts the following to be well-ascertained facts:—(*a*) That when an obstruction has existed in the urinary organs of the fœtus, the secretion of urine has gone on to a sufficient extent to cause changes similar to those which are seen in the urinary organs of adults after retention. (*b*) That the liquor amnii has been proved to contain urea, besides many salts such as those which are formed in normal urine. (*c*) That fœtal urine in some cases of hydronephrosis has been found not to contain either urea or uric acid, or to contain urea only in very small quantity. The conclusions which appear to be warranted by these facts are—1. That urine is secreted in considerable quantity during intra-uterine life. 2. That this quantity is far too great to be

stored up in a normal bladder and normal ureters. 3. That during the latter part of gestation, at least, urine is passed off through the urethra of the fœtus into the sac of the amnion. 4. That the proportion of urea in fœtal urine is in all probability smaller than it is in the urine secreted after birth, and that, as in cases of congenital hydronephrosis both urea and uric acid have been absent from the urine, it is possible they may also be absent from the liquor amnii. 5. That the quantity of urea in liquor amnii is very small, not exceeding 5 per 1000. 6. That the gradual decrease in the proportion of albumen in liquor amnii as pregnancy advances (from 10.77 per cent. in the fourth month to 0.82 at the ninth month) gives some support to the view that the fluid of the amnion is constantly altered by the admixture of some non-albuminous fluid, such as urine, and that this conclusion will be further strengthened if future analyses show that the proportionate quantity of urea and the salts of urine in the liquor amnii increases as the proportionate quantity of albumen diminishes. 7. That the presence in liquor amnii of other of the constituents of normal urine, besides urea, gives support to the same opinion.

THE ANATOMICAL STRUCTURES OF THE SOFT AND HARD CHANCRES (*The Medical Record*, May 13, 1876).—Dr. J. Caspary, of Königsberg, expresses the opinion that the essential difference in the structure of the hard and soft chancres consists in a new formation of connective tissue in the former, while it never reaches the same development in the latter, because of the constant destruction of tissue which goes on. In recent indurations this new formation is seen in the dense, thick network which everywhere surrounds the cells, while in those of longer standing, bundles of fibres run between the newly-formed cells. He regards the narrowing of the vessels which he observed in the older cases as the result and not the cause of the sclerosis. He believes that the formation of these fibres proceeds from the infiltration-cells, and not from a growth inwards of the peripheral young connective tissue. This latter he believes to be in the nature of a capsule, due to inflammatory action.

TAPPING FOR PLEURITIC EFFUSION (*The Lancet*, February 5, 1876).—Dr. A. T. H. Waters asserts that tapping should be done in all cases, *of whatever duration*, whether acute or chronic, where the accumulation of fluid seriously compromises respiration, and especially if there have been any sudden attacks of dyspnœa. Again, whenever an extensive effusion has lasted some weeks, and shows no signs of diminution from general treatment, tapping should be resorted to, whether dyspnœa is present or not. It is not necessary to remove the whole of the fluid; indeed, it is better not to do so if the effusion is large. The removal of a portion of the fluid usually has the desired effect, and seems to stimulate the process of absorption of the remainder, and to cause the general measures to act with greater success. There is one rule which should always be observed. It will be found that the patients, after a certain amount of fluid has been withdrawn, will often complain of a sensation of constriction across the chest or epigastrium, or of pain. Under either of these circumstances the operation should be at once stopped.

As regards the site for tapping, the rule is to find the inferior limit of the sound lung behind, and to tap two inches higher than this on the pleuritic side, in a line perpendicular from the inferior angle of the scapula.

With ordinary care, and especially by using the aspirator, no air need enter the chest in the operation.

MISCELLANY.

ANTISEPTIC PROPERTIES OF THYMOL.—The following notes of experiments made by L. Lewin to determine the antiseptic and antifermentative properties of thymol we translate from *Gaea*. This substance, thymol, obtained by distillation from oil of thyme, occurs in white, highly-aromatic crystals; when dissolved in hot water in the proportion of one part per 1000, it forms a fully saturated solution possessing a neutral reaction. More concentrated watery solutions cannot be obtained, for, when dissolved in greater proportions than 1 in 1000, the thymol evaporates. Lewin finds that 0.1 per cent. of this solution is sufficient to prevent fermentation in sugary liquids, no matter what the proportion of sugar and yeast. Milk to which a small quantity of the thymol solution was added did not begin to show signs of coagulation till twenty days later than milk with which an equal quantity of water had been mixed. Filtered white of egg in contact with the air was found to grow putrid in three or four days, whereas white of egg with which thymol-water had been mixed gave not the slightest indication of putridity after eleven weeks. The same results were obtained in treating pus with water and thymol: pus so treated at once lost its putrid odor, and continued to be odorless for five weeks, or until it had become dry.—*The Popular Science Monthly.*

PERCEPTION OF MUSICAL TONES.—From the researches of Prof. Preyer, of Jena, on the "Limits of Perception of Musical Tones," it appears that the minimum limit for the normal ear is from sixteen to twenty-four vibrations per minute, and the maximum forty-one thousand vibrations, though persons with average powers of hearing were found to be absolutely deaf to tones of sixteen thousand, twelve thousand, or even fewer vibrations.

Silence, according to Preyer, is a state of uniform minimum excitation of the auditory nerve-fibres. Silence is to the ear precisely what black is to the eye. The pressure of the fluid contents of the labyrinth and the flow of blood through the vessels must give rise to sensations of which we are unconscious only because of their uniformity, their constancy, and their low degree of intensity. Silence, when the attention is concentrated on the sense of hearing, is found to vary in degree just as the blackness of the visual field, when light is excluded from the eye, has been observed to vary. Lastly, the parallel between the auditory sense and the visual is borne out by a study of the entotic (intra-aural) sensations, which are closely analogous to well-known entoptical (or intra-ocular) phenomena.—*The Popular Science Monthly.*

NEW CAUTERY.—A new cautery seems to attract much attention in Paris. It is the invention of Dr. Paquelin. The accounts of it which have appeared do not give the details of its construction, but it appears to resemble in some particulars the gas cautery employed some years ago in London by the late Mr. A. Bruce. The principle of its construction is, that platinum, or a similar metal, heated to a certain point, becomes instantly incandescent in contact with a gaseous mixture of air and certain hydrocarbon vapors; and that this incandescence is maintained as long as the platinum and gas are in contact. With two hundred grammes of liquid, five hours' work can be done. Any temperature can be maintained steadily, from a dull-red to a brilliant-white heat, and can be instantly varied. Organic liquids, even cold water, do not, it is said, interfere with its activity.—*The Lancet.*

TREE-STUMPS.—General Colquitt gives the following method of getting rid of old stumps: "In the autumn, bore a hole one to two inches in diameter, according to the girth of the stump, vertically in the centre of the latter, and about eighteen inches deep. Put into it from one to two ounces of saltpetre; fill the hole with water, and plug up close. In the ensuing spring, take out the plug, and pour in about one to two gills of kerosene oil and ignite it. The stump will smoulder away, without blazing, to the very extremity of the roots, leaving nothing but ashes."

IT has been affirmed in a York County (England) court that no one has a right to shoot a mad dog, not even a policeman, but that the police must capture the rabid animal and indict him before two magistrates; if they decide him to be guilty of madness, he may be put to death. We should think vacancies would abound in the York County Police towards the close of the dog-days.

NEW TEST FOR ALCOHOL.—At a meeting of the Royal Irish Academy, Dr. Edmund Davy read a paper on a new chemical test for alcohol. One part by weight of molybdic acid added to ten parts by weight of sulphuric acid forms a mixture, a drop of which, added to a solution containing alcohol, instantly detects it by producing a blue coloration.—*British Medical Journal.*

IN London, Cornelius Asher, who in 1855 was sentenced to fourteen years' transportation for producing a fatal abortion, has recently been put upon trial for a similar offence.

SIR WILLIAM FERGUSSON is almost hopelessly ill. He is confined to his room with dropsy, and is stated to have emphysema of the lungs, valvular cardiac disease with hypertrophy, and renal albuminuria.

IN Iceland, one-sixth of the entire population are affected with hydatid tumors, and one-seventh of the human mortality is occasioned by them.

THE LATEST BORN.—The *Ohio Medical and Surgical Journal.*

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM JUNE 4, 1876, TO JUNE 17, 1876, INCLUSIVE.

HEAD, J. F., SURGEON AND MEDICAL DIRECTOR.—Granted leave of absence for two months and fifteen days, with permission to go beyond sea. S. O. 120, A. G. O., June 14, 1876.

BACHE, D., SURGEON.—To report to the Commanding General, Department of California, for assignment to duty. S. O. 112, A. G. O., June 7, 1876.

HARTSUFF, A., ASSISTANT-SURGEON.—To proceed with Companies at Fort Laramie to Fort Fetterman, Wyoming Territory, and accompany expedition against hostile Sioux. S. O. 68, Department of the Platte, June 2, 1876.

TILTON, H. R., ASSISTANT-SURGEON.—Ordered before Army Medical Board for examination for promotion, and, on its completion, rejoin his station. S. O. 112, c. s., A. G. O.

JAQUETT, G. P., ASSISTANT-SURGEON.—Granted leave of absence for four months. S. O. 115, A. G. O., June 9, 1876.

BREWER, J. W., ASSISTANT-SURGEON.—Assigned to temporary duty at Fort Sanders, Wyoming Territory. S. O. 63, Department of the Platte, May 26, 1876.

WHITEHEAD, W. E., ASSISTANT-SURGEON.—To report to the Commanding General, Department of the Missouri, for assignment to duty. S. O. 112, c. s., A. G. O.

STYER, CHARLES, ASSISTANT-SURGEON.—Assigned to duty at Fort Porter, New York. S. O. 100, Division of the Atlantic, May 31, 1876.

KING, J. H. T., ASSISTANT-SURGEON.—To report to the Commanding General, Department of Texas, for assignment to duty. S. O. 112, c. s., A. G. O.

CORSON, J. K., ASSISTANT-SURGEON.—Assigned to duty at Plattsburg Barracks, New York. S. O. 100, c. s., Division of the Atlantic.

PATZKI, J. H., ASSISTANT-SURGEON.—To proceed with troops from Fort Fred. Steele to Fort Fetterman, Wyoming Territory, and accompany expedition against hostile Sioux. S. O. 68, c. s., Department of the Platte.

WOODRUFF, E., ASSISTANT-SURGEON.—Granted leave of absence for one month. S. O. 102, c. s., Division of the Atlantic.

BYRNE, C. B., ASSISTANT-SURGEON.—Assigned to temporary duty at these Headquarters. S. O. 104, Department of Texas, June 8, 1876.

EWEN, C., ASSISTANT-SURGEON.—Assigned to duty at Fort Hamilton, New York Harbor. S. O. 100, c. s., Division of the Atlantic.

SEMIG, B. G., ASSISTANT-SURGEON.—Granted leave of absence for one month on Surgeon's Certificate of Disability, with permission to leave limits of the Department and apply for an extension of two months. S. O. 70, Department of Arizona, June 2, 1876.